PB89-189484

Superfund Record of Decision (EPA Region 2): Beachwood/Berkeley Wells, Ocean County, New Jersey (First Remedial Action), June 1988

(U.S.) Environmental Protection Agency, Washington, DC

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June 1988

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EPA

Superfund Record of Decision:

Beachwood/Berkeley, NJ

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

The Beachwood/Berkeley Well site, encompasses Beachwood Borough and Berkeley Township in central-east Ocean City, NJ. The total population of the two municipalities is approximately 23,000. In response to a public complaint of possible aluminum contamination of drinking water, the New Jersey Department of Environmental Protection (NJDEP) sampled four potable wells and discovered the presence of lead in exceedance of the Federal Interim Primary Drinking Water Standard. Subsequent sampling confirmed the presence of lead at approximately 4 times the standard. The Ocean County Health Department, collected additional samples in the two municipalities. Results of analyses indicated that 15 percent of the total wells sampled in the Borough and 3 percent of the residential wells sampled in the Township exceeded the regulatory standard for lead in drinking water, however, there was no distinct geographical pattern to the occurrence of the lead contamination. By order of the NJDEP, an alternate supply of water was provided to the affected residents. After extensive investigation of lead levels in residential tap water, surface water, ground water, sediments, soil, and lead concentrations in, and dissolution from plumbing systems, it was concluded that elevated concentrations of lead in drinking water were not caused by man-made or industrial sources. Rather, the sources of lead include; a minor contribution from native area

(See Attached Sheet)

17. Document Analysis a. Descriptors

Record of Decision
Beachwood/Berkeley Well, NJ
First Remedial Action
Contaminated Media: gw
Key Contaminants: lead

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 45
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16. ABSTRACT (continued)

ground water, lead packers used in well construction, and dissolution of lead from lead-bearing materials of home plumbing systems, particularly lead/tin solder.

Remediation under the Superfund program of the documented existence of lead in drinking water is precluded by law. The State of New Jersey is proceeding independently of Federal Superfund financing to address the presence of and the problems posed by lead in drinking water.

DECLARATION STATEMENT

RECORD OF DECISION

Beachwood/Berkeley Wells

SITE NAME AND LOCATION

Beachwood/Berkeley Wells, Ocean County, New Jersey

STATEMENT OF PURPOSE

This decision document presents the selected remedial action for the Beachwood/Berkeley site, developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent applicable, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300.

STATEMENT OF BASIS

I am basing my decision on the following documents, which are contained in the administrative record for the Beachwood/ Berkeley site:

- Background Investigation/Literature Search Report, prepared by Roy F. Weston, November 1985;
- Site Investigation - Volumes I and II, prepared by Roy F. Weston, September 1987;
- Selection of Remedial Response Objectives and Identification of Alternatives, Roy F. Weston, May 1988;
- Proposed Remedial Action Plan, June 1988;
- The attached Decision Summary;
- The attached Responsiveness Summary, which incorporates public comments received; and
- Staff summaries and recommendations.

DESCRIPTION OF SELECTED REMEDY

The selected alternative for the Beachwood/Berkeley site is to to take no remedial action under the Superfund program. The problem in the communities of Beachwood and Berkeley involves elevated lead levels in drinking water. The remedial investigation and related studies performed by the State of New Jersey indicate that residential plumbing systems are the primary cause for the lead contamination with a minor contribution from the area's native ground water. No man-made or industrial source of contamination was identified. Therefore, it is recommended to initiate the administrative procedures to delete the Beachwood/Berkeley site from the National Priorities List. The State of New Jersey will be addressing these types of lead in drinking water problems at this site and other locations in the State with its own resources.

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DECLARATIONS

In accordance with Section 104(a)(3) of the Comprehensive Environmental Response, Compensation and Liability Act, as amended, I have determined that no remedial action can be taken at the Beachwood/Berkeley site. Section 104(a)(3), Limitations on Response, precludes the use of Superfund monies for remedial action in response to a release or threat of release- (A) of a naturally occurring substance in its unaltered form or (B) from products which are part of the structure of residential buildings. At the Beachwood/ Berkeley site, the natural background level of lead in the ground water contributes to elevated lead in the tap water. In addition, the major source of lead in the drinking water is from the residential plumbing systems. Therefore, no action under the Superfund program can be taken.

The State of New Jersey has been consulted and agrees with the determination to take no remedial action.

JUNE 30, 1988
Date

Christopher J. Daggett
Regional Administrator

DECISION SUMMARY

Beachwood/Berkeley Wells

I. Site Location and Description

The Beachwood Berkeley Wells Superfund site encompasses the Borough of Beachwood and the Township of Berkeley in the central eastern part of Ocean County, New Jersey (see Figures 1 and 2). The entire Borough and Township were designated as the site for purposes of Superfund based on the fact that the nature of the problem was one of a known contaminant in drinking water, lead, exhibiting no geophysical pattern for its occurrence and resulting from an unknown source.

Beachwood Borough is a community covering an area of about 2.7 square miles. It is located directly south of Toms River and contained within the larger boundary of Berkeley Township. The Borough's approximate population of 8000 is concentrated into an area bounded on the west by the Garden State Parkway and on the east by Route 9. The Borough has no industrial base and only a limited number of commercial establishments. The Township of Berkeley encompasses over 40 square miles of mostly undeveloped Pine Barrens. The vast majority of the approximate 23,000 population resides east of the Garden State Parkway which runs in a north/south direction essentially dividing the Township in half. A limited number of industrial operations exist in Berkeley Township with moderate commercial development occurring in strip fashion along Route 9. The boundaries of the Township are Cedar Creek to the south, Barnegat Bay to the east, Toms River to the north, and Manchester and Lacey Townships to the west.

The site is situated in the New Jersey Pinelands Area. Specifically, the northern portion of Berkeley Township is mapped as being in the Pinelands National Reserve; the central portion of the township is mapped as being in the Pinelands Protection Area; and the southern portion of the township is mapped as being in the Pinelands Preservation Area. In terms of ground water quality, Figure 3 shows that portion of the study area affected by New Jersey's stringent water quality criteria (Class GW-1) which is applied to the Central Pine Barrens Water Quality Critical Area.

Ocean County lies in the Atlantic Coastal Plain. The study area is characterized by low relief and gentle slopes starting at sea level along Barnegat Bay and rising to an altitude of 60 feet above sea level in the center of the study area. The area is part of the Toms River drainage basin, and is drained

principally by small streams running east toward Barnegat Bay or northeast to Toms River.

The soils of Ocean County are generally termed excessively drained according to United States Department of Agriculture, Soil Conservation Service, nomenclature. Poorly drained soils occur in low-lying areas near streams and other bodies of water. Soil drainage has a pronounced effect on the amount of organic matter which accumulates in the upper soil horizons, with poorly drained soils containing much more organic matter than well-drained soils. The soils in the study area are typical of the soils over much of the "Pine Barrens" area in southern New Jersey. The Pine Barrens soils typically have a surface layer rich in organic matter underlain by sandy subsoils. As rainwater perolates through the organic matter, carbonic acid is produced by assimilation of carbon dioxide. Because the subsoils are sands which are relatively chemically inert, they do not buffer the acidic water (Means et. al. 1981). Consequently, the ground water in contact with these soils often is relatively high in acidity.

Two aquifers exist beneath the site area -- an undifferentiated water table aquifer comprised of the Cape May Formation, the Pennsauken Formation, and the Cohansey Sand and the deeper Kirkwood Formation aquifer (see Figures 3 and 4). The Cohansey and Kirkwood Formations are the predominant aquifers providing water for potable supplies and irrigation purposes in the study area. The Cohansey is estimated to be approximately 160 feet thick in the study area, and the Kirkwood is first encountered at a depth of approximately 340 feet and is roughly 140 feet thick. Ground water from the Cohansey is generally acidic (pH ranges from 4.4 to 6.7) and tends to be corrosive or soft. Almost all of the private household wells in the study area tap the water table aquifer. The Kirkwood Formation is the most intensely developed aquifer in Ocean County providing most of the water for the public water supplies. Recharge to the Kirkwood is principally by leakage from this water table aquifer. The quality of the ground water from the Kirkwood is similar to that of the water table aquifer.

The ground water quality in New Jersey is classified according to the total dissolved solids (TDS) content. There are two classes for the study area -- GW-1 and GW-2. The GW-1 class has a TDS content limit of 100 milligrams per liter (mg/l) or less. Figure 2 depicts the southwest corner of Berkeley Township subject to New Jersey's stringent water quality criteria, GW-1, for the Central Pine Barrens Water Quality Critical Area. This area is intended by the Pinelands Commission to preserve the highly fragile Pinelands ecosystem by ensuring that the water quality of the Central Pine Barrens is protected. The remaining part of the study area is classed GW-2 which has a TDS content limit of 500 mg/l or less.

None of the surface waters within the study area are used as public or private water supplies. The various streams and ponds throughout the site area are used for recreational purposes with water from a few of the streams and ponds occasionally used for irrigation purposes. Stream flow in the coastal area consists largely of ground water discharge.

II. Site History

A. Origin of Problem

In March 1982, the New Jersey Department of Environmental Protection (NJDEP) responded to a public complaint of possible aluminum contamination of drinking water. Four potable wells in Beachwood were tested for aluminum as well as other metals including lead. In one of the four wells, the lead level exceeded the Federal Interim Primary Drinking Water Standard of 0.05 mg/l and was confirmed by subsequent sampling at an even greater concentration, at approximately four times the standard.

B. Initial Response Actions

As a result of the above findings, the Ocean County Health Department (OCHD) established a sampling program to determine the quality of drinking water from domestic wells throughout Beachwood Borough. Seven hundred samples were ultimately collected from 601 domestic wells in Beachwood during the months of June, July and August 1982. Lead was measured in approximately 20 percent of the ground water samples above the Federal drinking water standard. This accounted for over 90 private wells or 15 percent of the total wells sampled.

The OCHD extended its sampling efforts to the surrounding area of Berkeley Township. Throughout the months of August and September 1982, 1004 samples from 935 domestic wells in the Berkeley Township were sampled and analyzed for lead. Approximately four percent of the samples and three percent of the residential wells were above the lead standard. A frequency distribution of lead concentrations in the sampled wells for both communities is provided in Table 1.

In addition to the sampling of domestic wells, five polyvinyl chloride (PVC) monitoring wells were installed by NJDEP in areas where high, intermediate, and low concentrations of lead were detected in the domestic wells. These wells were sampled during October and December 1982. The analytical results of these samples provided inconsistent data which was not reproducible during subsequent sampling.

Lead analyses were also performed on composite sediment samples collected during the drilling of one of the monitoring wells. The lead levels ranged from 1.75 to 16.75 milligrams per killigram

(mg/kg). These values are not considered high, as typical lead levels of New Jersey soils range from 1 to 180 mg/kg. Mineralogical analyses of sediments taken from the Cohansey Sand in Beachwood and the Pennsauken Formation in Berkeley did not identify lead in the samples.

Surface water samples were collected by OCHD in July 1982 from Fisher's Gravel Pit, a suspected source of lead contamination. The samples were taken from a lagoon and a pond fed by storm runoff water. Lead was not detected in either of the samples.

C. Enforcement Actions As a Result of NJDEP's Recommendation

In August 1982, OCHD closed 92 private domestic wells in Beachwood because of elevated levels of lead in the drinking water. NJDEP subsequently requested Beachwood to take the necessary measures to extend the municipal water supply to service all homes east of the Garden State Parkway with public water. This area of Beachwood was the only area not served by the public community water suppy. Beachwood Borough complied with this request by submitting to NJDEP, on November 12, 1982, a Construct/Application for Public Potable Works Modification (Project No. 2-11-823260). The modifications proposed included extension of the existing distribution system, construction of an additional supply source, expansion of the existing water treatment plant, and enlargement of water storage facilities. NJDEP approved the water supply expansion project on November 18, 1982.

On December 3, 1982, based on NJDEP's finding that emergency circumstances existed relative to the need for safe drinking water within the Borough of Beachwood, NJDEP issued an Administrative Order to Beachwood ordering the implementation of the following remedial measures:

(1) Extend the public water system to all homes in Beachwood located east of the Garden State Parkway within 180 days of receipt of the order;

(2) Require all homes within Beachwood to connect to the public water supply system; and

(3) Sample and analyze quarterly all Beachwood supply wells for lead.

Beachwood requested and was granted an Administrative Hearing to object to the 180-day timetable as being inadequate to allow time to obtain the necessary funding for the water system expansion. Beachwood received a $1.9 million loan from the Federal Housing Authority in March 1983, and subsequently executed an Administrative Consent Order with the Department on May 4, 1983 to implement the provisions of the Administrative Order. Construction of the water system expansion was completed in late 1983.

It is noted that OCHD also closed wells in Berkeley Township based on NJDEP's recommendations. NJDEP did not issue an Administrative Order to Berkeley Township similar to that of Beachwood because Berkeley Township did not have a public water company to expand and its sparse population did not lend itself to a community water supply at that time.

Residential Tap Water General Study

A total of 90 residences evenly divided between Beachwood and Berkeley and broken down by three age categories (less than one year old, one to five years old, and greater than five years old) were sampled. The samples were obtained from the kitchen tap at "first flush" after water resided in the plumbing system overnight, and after the water was run for 60 minutes continuously. The sample locations are shown in Figures 7 and 8.

- 12 homes of 45 in Berkeley and three of 45 in Beachwood exceeded the 0.05 mg/l drinking water standard for lead.

- 10 of the 15 homes exceeding the lead standard were less than one year old (nine of 12 in Berkeley).

- 51 of 90 homes exceeded the Environmental Protection Agency's contemplated maximum contaminant level (MCL) for lead of 0.01 mg/l (30 from Berkeley and 21 from Beachwood). Of the Berkeley residences, 26 of 30 were first flush samples and 13 of 30 were less than one year old. Of the Beachwood residences, 20 of 21 were first flush samples and 12 of 21 were less than one year old.

- 17 homes in Berkeley exceeded the 1.0 mg/l drinking water standard for copper.

In the majority of the water systems tested, lead levels dropped after running the water for five to 10 minutes. However, running the tap water for a period of time prior to consumption is not a guaranteed measure for attaining the drinking water standard. In a few cases, a slight increase in lead levels was observed after running the tap water for 60 minutes. This apparent increase may be attributed to mobilization of lead caused by extensive and turbulent flushing of the plumbing system.

Residential Tap Water Flushing Study

Six of the 15 Berkeley homes less than one year old were chosen to assess the response of lead concentrations to continued flushing. In addition to a first flush and a 60-minute sample, a time series of 17 to 18 additional samples during the one-hour period were collected and analyzed.

- Three of the six homes had lead levels exceeding the lead drinking water standard of 0.05 mg/l after 60 minutes with a fourth home exhibiting a lead level above the standard after 50 minutes and a fifth home at the lead standard after nine minutes of flushing.

- Lead levels were variable during the course of the one-hour test span.

In addition to the tap water sampling, testing was done on the plumbing system in an effort to pinpoint the source of lead within the system. The results of this effort confirmed that the plumbing system was a significant contributor to the elevated lead levels; however, they were inconclusive with regard to the source within the system.

Surface Water and Sediment Investigation

In an effort to identify the sources of the lead contamination, surface water and sediment samples were collected at 10 locations throughout the study area.

- Sample results indicated that neither surface water nor sediments contributed significant amounts of lead, other metals, or organic substances to the ground water underlying the study area.

Ground Water Quality Investigation

Ten ground water monitoring wells of lead free materials (both PVC and stainless steel) were installed throughout the study area to examine the native ground water quality.

- Total and soluble lead concentrations in all of the well samples were below the lead drinking water standard indicating that the native ground water is acceptable as a potable supply. After well development, lead was not detected in six of the 10 wells; the four other wells had lead levels up to 0.025 mg/l.

- Data for wells constructed of PVC did not differ significantly from the data for wells constructed of stainless steel.

Soils Investigation

Thirty-two split-spoon soil samples were collected for analysis at varying depths during the construction of eight of the ten monitoring wells installed.

- Analytical results indicated low lead concentrations in all of the soil samples. Elevated lead values of up to 0.035 ppm (parts per million) were encountered at some of the

near surface samples (0-2 foot depth) suggesting that atmospheric lead from possible sources such as auto and industrial emissions may be reaching the ground surface.

- Lead concentrations overall decreased with depth.

- Based on the analytical results, the regional soils do not appear to contribute significant amounts of lead to the ground water.

Special Purpose Study of Lead Packers

The Background Investigation Report documented the fact that many members of the drilling industry had historically used lead as a packing material for new potable well construction. In order to investigate the influence of lead packers, three pairs of monitoring wells were installed in Beachwood with one of the wells in each pair constructed utilizing a lead packer bolted to the inside of the screened portion of the well casing.

- The developed well water samples from the lead packer wells as well as the non lead packer wells were less than the lead drinking water standard.

- The lead packer wells generally exhibited higher lead levels than non-lead packer wells.

Manifold Study

A controlled laboratory study to investigate the leaching of lead from soldered joints in simulated plumbing systems constructed of copper pipe manifolds was performed. The variables manipulated were (1) type of solder (lead/tin and silver/tin), (2) neatness of solder application (neat or sloppy), (3) water source (native Berkeley ground water and Beachwood municipal water), and (4) water residence time in manifold (one or 12 hours).

The analytical results of the manifold study indicated:

- Lead concentrations in the Berkeley Township ground water samples were significantly greater than those in the Beachwood municipal supply water which can be attributed primarily to the pH treatment of the municipal supply.

- Higher lead concentrations were also generally found for

  - the 12 hour samples vs. the one hour samples,

  - the lead/tin soldered manifolds vs. the silver/tin soldered manifolds, and

  - the sloppy soldered joints vs. the neatly soldered joints.

Is is noted that, although higher lead concentrations were found in the lead/tin soldered manifolds, the silver/tin soldered manifolds exhibited total lead levels above the lead drinking water standard for both the Berkeley native ground water and Beachwood municipal water after 12 hours and the Berkeley ground water after one hour. Silver/tin solders may contain up to 0.2 percent lead as an impurity and the lead content in pipes connected to public water supply systems may contain up to eight percent.

III. Community Relations History

Community involvement was solicited at the initiation of the Remedial Investigation at a public meeting held on April 18, 1985 in Berkeley Township's Central Regional High School and at the conclusion of the Remedial Investigation on June 7, 1988 at the Berkeley Township Municipal Building. The Proposed Remedial Action Plan with supporting attachments was released to the public information repositories on May 27, 1988. The public comment period, initiated on this date, solicited public comment through June 25, 1988. Municipal officials along with citizens of the two communities and media representatives participated in the meetings.

Specific concerns raised during the public comment period, including comments made at the final public meeting, are addressed in the attached Responsiveness Summary. A transcript of the public meeting is available in the Administrative Record located at the NJDEP office in Trenton, New Jersey.

IV. Alternatives Evaluation

The Remedial Investigation documents the fact that there is no man-made or industrial contaminant source causing the elevated lead in drinking water. Rather, the sources of the lead are comprised of a minor contribution from native ground water in the area, lead packers used in well construction, and dissolution of lead from lead bearing components of home plumbing systems, particularly lead/tin solder.

The Superfund Amendments and Reauthorization Act (SARA) in Section 104(a)(3) Limitations on Response states "The President shall not provide for a removal or remedial action under this section in response to a release or threat of release-

(A) of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found;

(B) from products which are part of the structure of, and result in exposure within residential buildings or business or community structures; or

(C) into public or private drinking water supplies due to deterioration of the system through ordinary use."

Item A is applicable to this Superfund site in that a natural background level of lead contributes to the lead concentration in tap water for Berkeley Township residences with wells. In addition, Item B is applicable because the lead solders used in copper plumbing systems are the major source of lead in tap water for both communities, particularly, the Berkeley Township residences with wells tapping into the mildly corrosive ground water of the Cohansey aquifer.

Accordingly, remediation under the Superfund program of the documented existence of lead in drinking water in Beachwood Borough and Berkeley Township is precluded by law and no evaluation of alternatives pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, as amended, is provided.

The State of New Jersey is proceeding independently of Federal Superfund financing to address the lead contamination in drinking water potentially affecting the entire State. This effort has begun in earnest with public education.

The "Open Forum on Lead in Drinking Water", which was the second portion of the June 7, 1988 public meeting to present the Proposed Remedial Action Plan, was a part of this public education effort. Remedial alternatives available to individual homeowners, including point-of-use treatment devices potentially applicable to remediating the elevated lead in drinking water, were presented during this portion of the public meeting.

V. Documentation of Significant Changes

In view of the Site Investigation findings that the lead contamination in drinking water occurs as a result of elevated levels in the area ground water and the residential plumbing systems, the no action alternative as described in the Proposed Remedial Action Plan is not changed.

VI. Selected Remedy

The selected remedy for this site calls for no remediation of the lead in drinking water in accordance with Section 104(a)(3) of SARA, Limitations On Response. This is an administrative decision mandated by Federal law.

The State of New Jersey is addressing the problems posed by lead in drinking water from plumbing systems throughout the State independently of Federal Superfund monies.

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS SITE MITIGATION
401 E. State St., CN 413, Trenton, NJ. 08625-0413
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Anthony J. Farro
Director

RESPONSIVENESS SUMMARY
FOR THE
COMPLETION OF THE REMEDIAL INVESTIGATION STUDY
AT THE
BEACHWOOD/BERKELEY WELLS SUPERFUND SITE
BEACHWOOD BOROUGH AND BERKELEY TOWNSHIP
OCEAN COUNTY
NEW JERSEY

This Community Relations Responsiveness Summary, prepared as a part of the Record of Decision (ROD), is divided into the following sections:

I. OVERVIEW

This section briefly discusses the conclusions of the Remedial Investigation Study (RIS) and summarizes public reaction to the New Jersey Department of Environmental Protection (NJDEP) and United States Environmental Protection Agency (USEPA) Proposed Remedial Action Plan (PRAP).

II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

This section provides a brief history of community interest concerning the Beachwood/Berkeley Wells Superfund site and a chronology of community relations activities conducted by NJDEP and USEPA prior to and during the RIS.

III. SUMMARY OF MAJOR QUESTIONS AND COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND NJDEP'S RESPONSES

This is a summary of major questions and comments directed to NJDEP during the June 7, 1988 public meeting regarding the results of the RIS and sent to NJDEP during the public comment period. NJDEP's/USEPA's responses are included in this section.

IV. REMAINING CONCERNS

This is a discussion of remaining community concerns of which NJDEP and USEPA should be aware.

V. ATTACHMENTS

A. Agenda, Fact Sheet, Press Releases and Public Meeting Notice for the 6/7/88 Public Meeting.
B. Agenda, Fact Sheet, Press Release and Public Meeting Notice for the 4/18/85 Public Meeting.
C. List of Speakers at the 6/7/88 Public Meeting.
D. Proposed Remedial Action Plan - Beachwood/Berkeley Wells Site, June 1988.

I. OVERVIEW

The Remedial Investigation Study (RIS) concluded that no industrial source was the cause of the elevated lead levels found in the drinking water of Beachwood/Berkeley. Rather, the sources of the lead are from: (1) the dissolution of lead from plumbing system components by corrosive water, particularly lead in solder joints; (2) the construction materials of the potable wells; and (3) a minor contribution from the area's native ground water. Because the contamination occurs as a result of residential building materials and the natural background level of lead in the aquifer, the Superfund Amendments and Reauthorization Act (SARA) precludes the use of Superfund monies to remediate the lead contamination. Section 104(a)(3), Limitations on Response, under SARA states: "The President shall not provide for a removal or remedial action under this section in response to a release or threat of release -

(a) of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found;

(b) from products which are part of the structure of, and result in exposure within residential buildings or business or community structures; or

(c) into public or private drinking water supplies due to deterioration of the system through ordinary use."

Based on comments received during the public comment period, Beachwood Borough officials and residents are concerned about reimbursement for expenditures incurred as a result of a 1983 Administrative Consent Order with NJDEP. Beachwood and Berkeley Township residents are concerned with: effective ways for homeowners to remediate the lead contamination in drinking water; the length of time from the discovery of the problem until the completion of this study; and one resident's request to receive an additional copy of well test results.

These concerns have been addressed both at the June 7, 1988 public meeting and within this Responsiveness Summary.

II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

The discovery of lead levels exceeding the USEPA Interim Primary Drinking Water Standard of 50 parts per billion (ppb) in Beachwood

Borough and Berkeley Township stimulated active community interest and involvement. In response to a routine complaint involving an alleged case of aluminum poisoning, the NJDEP Division of Water Resources (DWR) sampled four private wells in Beachwood in March 1982. One well had a lead level that exceeded 50 ppb. Subsequent sampling of the same residential well in May 1982 revealed an even higher lead level (over four times the standard).

From June through September of 1982, NJDEP and the Ocean County Health Department (OCHD) collected over 1700 samples from residential wells in Beachwood (700) and Berkeley (1000). This widespread residential well sampling created increased awareness, involvement and concern by the citizens of the two communities.

In August 1982, NJDEP DWR announced the issuance of a draft Administrative Order to Beachwood Borough. This draft order required the Borough to extend the municipal water lines to service 950 homes with documented or potential well contamination. Some Beachwood homeowners formed Protect Our Wells (POW) to express their objection to the requirements to connect to municipal water. The group hired an attorney in an effort to stop the water line extension. By 1986 interest in the organization seemed to have waned.

An Administrative Consent Order (ACO) was signed between NJDEP and Beachwood in May 1983. The ACO resulted in the extension of the municipal water system to all homes in the Borough east of the Garden State Parkway. It also required quarterly sampling and analysis of all public water supply wells within Beachwood for lead. Construction for the extension of the municipal water system began in September 1983 and was completed in 1984.

Other organized groups involved in the lead in drinking water issue have included: the Beachwood Senior Citizens Group, the Concerned Citizens for Pure Water, and the Berkeley Township Homeowners Association.

CHRONOLOGY OF COMMUNITY RELATIONS ACTIVITIES

Date	Event
7/82	Ocean County Health Department conducted a public meeting to answer residents' questions. NJDEP attended the meeting. An estimated 350 people attended.
7/26/82	An emergency meeting was held between the governing body of Beachwood Borough and the NJDEP DWR.. The Borough mayor and council authorized the Borough Engineer to begin preliminary feasibility and cost studies for extending water lines throughout the community.
8/1/82	Beachwood's governing body met with NJDEP Commissioner Robert E. Hughey, Senator Leonard Connors, and Assemblymen John Hendrickson and Jorge Rod. A special task force was established.
8/2/82	Representatives from Beachwood's governing body met with New Jersey Governor Thomas Kean to discuss plans for seeking aid.
8/5/82	A meeting was held between members of the task force to develop preliminary plans for seeking state aid, Federal Housing Administration loans, and other forms of assistance.
9/82	Protect Our Wells (POW) was formed in reaction to NJDEP's draft Administrative Order to Beachwood Borough.
10/4/82	Governor Thomas H. Kean announced an innovative cooperative federal/state assistance concept for water supply improvement in Beachwood. Beachwood had made applications to the NJ Department of Community Affairs for a $500,000 small cities block grant and the federal Farmers Home Administration for a loan/grant of over $1.8 million.
7/83	A draft Community Relations Plan (CRP) was prepared by USEPA.
1/23/84	State and local officials were notified of a Cooperative Agreement between USEPA and NJDEP for a $632,540 grant to conduct a Remedial Investigation/Feasibility Study (RI/FS).
4/84	A final Community Relations Plan was prepared by NJDEP.
3/29/85	Notices were sent to those listed on the contacts list of the CRP announcing the 4/18/85 public meeting.
4/8/85	A press release was issued announcing the 4/18/85 public meeting.
4/18/85	A public meeting was held at the Central Regional High School to discuss the initiation of the RI/FS. Approximately 60

people attended including citizens, local, state and county officials and media representatives.

5/24/88 — A press release was issued announcing the 6/7/88 public meeting.

5/27/88 — A press release was issued describing the Proposed Remedial Action Plan (PRAP) and its availability along with the Remedial Investigation Study (RIS) documents in several repositories.

The PRAP and the RIS reports were placed in repositories for public review and comment at six locations: the Beachwood Borough Municipal Building, the Beachwood Borough Library, the Berkeley Township Municipal Building, the Berkeley Township Library, the NJDEP in Trenton, and the USEPA in New York. The public comment period was from May 27, 1988 to June 27, 1988.

A meeting notice was sent to those listed on the contacts list of the CRP announcing the 6/7/88 public meeting and the availability of the PRAP.

5/31/88 — NJDEP held a briefing for municipal officials of Beachwood and Berkeley.

6/7/88 — A public meeting was held at the Berkeley Township Municipal Building to discuss the completion of the RIS and PRAP for the Beachwood/Berkeley Superfund Site. Approximately 20 people attended including citizens, municipal, county and state officials, and media representatives.

Telephone contact and written correspondence was maintained between NJDEP and county and municipal officials and the press (ongoing throughout the RIS).

III. SUMMARY OF MAJOR QUESTIONS AND COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND NJDEP's RESPONSES

In May 1988, the Remedial Investigation Study (RIS) and the Proposed Remedial Action Plan (PRAP) were placed in the following repositories for review: Beachwood Borough Municipal Building, Clerk's Office, 315 Atlantic City Boulevard; Beachwood Borough Library, 126 Beachwood Boulevard; Berkeley Township Municipal Building, Clerk's Office, Pinewald-Keswick Road; Berkeley Township Library, 42 Station Road; NJDEP, 401 East State Street, Trenton; and USEPA, Region II, 26 Federal Plaza, New York.

NJDEP held a briefing for local officials on May 31, 1988. On June 7, 1988, NJDEP held a public meeting to present the results of the RIS (see Attachment A: Agenda and Fact Sheet) and to receive comments/questions. The meeting was held at the Berkeley Township Municipal Building. Notification of the public meeting and the availability of the RIS reports and the PRAP was accomplished through

press releases and direct mailing of notices to contacts listed in the Community Relations Plan including municipal, state and federal officials, as well as identified concerned citizens (see Attachment A). Approximately 20 people attended including citizens, municipal and state officials, and media representatives. Two people commented during the June 7, 1988 meeting.

The public comment period was from May 27, 1988 through June 27, 1988. The only comments were made during the public meeting and briefing. No written comments were received by NJDEP during this period.

Following is a summary, organized by subject, of all major questions/comments received by NJDEP at the public meeting, briefing and during the comment period. Major subjects include:

- Reimbursement by Superfund
- Length of Study
- Well Test Results
- Ways to Remove Lead from Drinking Water

Reimbursement by Superfund

Question:

Is it true that the Borough of Beachwood will not be eligible for any Superfund monies to reimburse residents for hookup fees to the municipal water system as required by an NJDEP Consent Order?

Response:

That is correct. Federal law only permits use of Superfund monies when there is a Superfund Hazardous Waste Site that is responsible for the contamination. NJDEP/USEPA are precluded by the Superfund Amendments and Reauthorization Act (SARA) from using Superfund monies to remediate the lead contamination in drinking water of the Beachwood/Berkeley area.

Question:

In 1982 the Borough of Beachwood was directed to build a $2 million municipal water system and did so. Now, after completing this study, NJDEP has advised the Borough that these actions were unnecessary.

Response:

NJDEP/USEPA maintain that the best remediation for the lead in the drinking water is replacement of private wells with a municipal water supply. The municipal supply provides controls on the corrosivity of the drinking water before entering a home's plumbing while a private well cannot. The corrosive water is the major cause of lead leaching from the plumbing system into the drinking water. NJDEP's decision to require the extension of the municipal water system in Beachwood was an appropriate one because it provides for the central control of the corrosivity of the drinking water. This allows for the monitoring of naturally occurring lead in the drinking water and avoids problems emanating from the construction materials used in delivering potable water to the tap. Although the decision was based in part on an incorrect assumption (namely, the existence of a hazardous waste site) this ultimately provides the best solution to the problem.

Question:
Is there any recourse for the Borough's expenses?

Response:
Although the department cannot and does not provide legal advice to the Borough or any other person, it appears that there is no legal recourse for the Borough to take. This document has already indicated that this site is not eligible for Superfund monies. Although it is questionable whether the New Jersey Spill Compensation Fund could entertain a claim for reimbursement for damages caused by naturally occuring conditions, here the statute of limitations has expired for filing such a claim.

Length of Study

Comment:
The April 18, 1985 public meeting left the impression that the study would be completed in one year. Now, in 1988, only eleven of fifteen phases have been completed.

Response:
NJDEP/USEPA have completed the study. Step eleven was the final step. The remaining four steps would be necessary if this site had remained eligible for Superfund remediation funding.

Comment:
The Borough of Beachwood was given 180 days to agree to a Consent Order to be eligible for federal money from a Farmer's Home Loan during 1982-83. The fact that the study is complete and the exact causes are now known is a credit to NJDEP/USEPA and the contractor, but it should have been completed in one year, instead of six.

Response:
There have been three unavoidable, but substantial delays during the course of this investigation. (1) Although NJDEP/USEPA held a public meeting in April 1985, the contract approval process and authorization for the contractor to begin work was not completed until 1986. This was due to insurance and indemnification problems causing an eight-month delay in the contract award. (2) The subcontracting laboratory was decertified for use by NJDEP after the contract award, requiring the procurement of a new subcontractor. (3) The discovery of new scientific information required a complete renegotiation of the project's Scope of Work. Initially the study sought to identify a hazardous waste site or discharge point as the source of the contamination. Simultaneously, NJDEP's Division of Science and Research conducted a research study in conjunction with the United States Geological Service (USGS) concerning lead in ground water and drinking water from private wells in New Jersey. Their research developed conclusive results pointing to plumbing and well materials used in home construction as a source of lead contamination. It became apparent that the Superfund study as initially planned, would not adequately define the source of contamination unless it also considered these potential sources. Therefore, the entire Scope of Work was revised and renegotiated.

Well Test Results

Question:
A resident stated that as a part of the study, his well was tested six months after he had moved in. That test's results were above the allowable limit for lead in drinking water. Yet when the well was tested prior to his purchasing the home, the lead level was below the limit. He was told by "someone at the state" that the lead was from the plumbing and, in time, a coating would develop in the plumbing and the lead levels would drop. On the contrary, the levels increased after six months.

Response:
Generally six months is not enough time to remove all easily leachable metals from plumbing or to form a protective coating. Because the ground water in this case is corrosive, it is very "soft" and there is very little carbonate that would produce the coating or "scale" in the plumbing. That would take a much longer period of time.

Question:
The resident further inquired if the test was taken through his water softener and whether a water softener would remove lead from drinking water.

Response:
The sample was taken through the water softener. All samples were taken from the kitchen tap to observe how a conditioner, softener or filter might affect the test results although it is known that a softener will not remove lead from drinking water. A water softener basically exchanges sodium (like salt) for the calcium in the water. The calcium is what makes water "hard". In fact, because most corrosive water is "soft" by definition, a water softener may make the water more corrosive and actually exacerbate the problem of lead leaching from the solder joints in the piping beyond the water softener.

Question:
Finally, he asked how he could obtain a copy of the test results?

Response:
Mr. Charles McCarty of NJDEP, Bureau of Community Relations should be contacted at (609) 984-3081 to obtain test results.

Ways to Remove Lead from Drinking Water

Question:
The resident also asked how lead can be removed from drinking water?

Response:
A variety of techniques are available to remove lead at the tap or through a home system. These options include bottled water, municipal water supply and flushing. Following the Part 1-Superfund Study meeting, a Part 2-Open Forum on Lead in Drinking Water was held to discuss these and other options available to a homeowner to remediate the lead in drinking water.

IV. REMAINING CONCERNS

The NJDEP is precluded by Section 104(a)(3)(A) and (B) of the Superfund Amendments and Reauthorization Act (SARA) from spending Superfund monies to remediate the lead contamination in drinking water for the Beachwood/Berkeley area. There are, however, community concerns that will need to be addressed through other programs. These concerns include:

- Reimbursement to the Borough of Beachwood and its residents for expenditures incurred as a result of NJDEP's 1983 Administrative Consent Order.
- Effective ways for the homeowner to remediate the lead contamination in the drinking water.

Public Meeting Agenda

to Discuss

Results of the Remedial Investigation Study
for the
Beachwood/Berkeley Wells Site
Beachwood Borough and Berkeley Township
Ocean County

7:00 PM

Tuesday, June 7, 1988
Berkeley Township Municipal Building
Council Chambers
Pinewald-Keswick Road (Route 618)
Bayville, NJ

Part 1 - Superfund Study

1.	Opening Remarks, Introductions	Ms. Grace Singer, Chief Bureau of Community Relations Division of Hazardous Site Mitigation NJDEP
2.	Site History and Project Overview	Mr. Joseph Maher, Site Manager Bureau of Site Management Division of Hazardous Site Mitigation NJDEP
3.	Presentation of the Remedial Investigation Study	Mr. Joseph Tomalavage Project Manager Roy F. Weston, Inc.
4.	Comments/Questions	The floor will be open for comments and questions regarding the study at this time.

over...

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FACT SHEET

**Results of
Remedial Investigation Study
at
Beachwood/Berkeley Wells Superfund Site
Beachwood Borough and Berkeley Township
Ocean County
June, 1988**

Site Description

The Beachwood/Berkeley Wells Superfund site encompasses the entire Beachwood Borough and Berkeley Township. The study area includes approximately 10 square miles in the two municipalities. In 1982 the New Jersey Department of Environmental Protection (NJDEP) and the Ocean County Health Department (OCHD) collected approximately 700 water samples from domestic wells in Beachwood Borough and approximately 1000 water samples from domestic wells in Berkeley Township. The results of the analyses indicated that about 20 percent of the wells sampled in Beachwood and four percent of the wells in Berkeley Township exceeded the United States Environmental Protection Agency (USEPA) Interim Primary Drinking Water Standard for lead which is 50 parts per billion (ppb). There is no obvious geographical pattern to the occurrence of the lead in well water within these communities that could point to an obvious source or sources for lead.

Background

An Administrative Consent Order (ACO) was signed between NJDEP and Beachwood Borough on May 4, 1983 which resulted in the extension of the Borough's public water system to all homes in the Borough east of the Garden State Parkway. The ACO also required quarterly sampling and analysis of all public water supply wells within Beachwood for lead. In January 1984 the NJDEP signed a Cooperative Agreement with the USEPA to conduct a Remedial Investigation Study. A contract to conduct the study was awarded to Roy F. Weston, Inc. of West Chester, Pennsylvania at a cost of approximately $470,000. Of the 100 New Jersey sites listed on the National Priorities List (Superfund), the Beachwood/Berkeley Wells site is ranked 55th.

Status

The completed draft Remedial Investigation Study and the Proposed Remedial Action Plan (PRAP) are available for public review at the following repositories: Berkeley Township Library in Bayville; Berkeley Township Municipal Building in Bayville; Beachwood Borough Library in Beachwood; Beachwood Municipal Building in Beachwood; USEPA Region II, Community Relations Staff in New York City; and NJDEP Division of Hazardous Site

Factors that affect the concentration of lead in the drinking water are: corrosiveness of the water - the more corrosive the water the more likely that lead will leach from the plumbing; time of contact - the longer the water is in contact with the plumbing system the higher the lead concentration; age of the plumbing - newer plumbing systems (less than 1 year old) have more leachable lead available than older systems; type of solder and quality of construction - use of lead-tin solder and sloppy construction allow more lead to leach from the plumbing. The study also indicated that lead concentrations generally decrease to levels below 50 parts per billion (ppb) with prolonged flushing.

No Further Action Under Superfund

Section 104(a)(3), Limitations on Response of the Superfund Amendments and Reauthorization Act (SARA) states, "The President shall not provide for a removal or remedial action under this section in response to a release or threat of release:

(A) of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found;
(B) from products which are part of the structure of, and result in exposure within residential buildings or business or community structures; or
(C) into public or private drinking water supplies due to deterioration of the system through ordinary use".

The subject of lead in drinking water has come under considerable national attention since the start of the Remedial Investigation Study in 1984. In June of 1986, when Congress amended the National Safe Drinking Water Act, two specific provisions were included about lead. One, is a ban on lead based solder in all new plumbing installed whether in homes or in water distribution systems. And two, required public notification by all public water systems that might have lead components in their system, of the potential occurrence, the health effects, and ways to reduce the levels of lead in drinking water. Attached is a pamphlet produced by the USEPA that explains in greater detail many of these same points.

Also during this time period new health effect information was emerging which indicated that the previous national goal for blood lead levels should be lowered. This change in overall lead exposure has resulted in a reassessment in the routes of exposure to lead and their acceptable levels. The USEPA has released draft proposals that would lower the existing 50 parts per billion maximum contaminant level (MCL). The proposed standard is 20 parts per billion (ppb), as a maximum level.

The attached pamphlet answers many questions regarding how to reduce the level of lead, what treatment can be provided, what individuals are most susceptible to the problem, and what actions government is taking.

Glossary of Terms

Administrative Consent Order (ACO): A binding legal document between a government agency and a responsible party. It is issued by the government in the form of an order that specifies site mitigation activities to be undertaken by the responsible party.

Contract: The legal agreement that outlines federal and state government responsibilities at USEPA-lead sites on the National Priorities List (Superfund sites) as authorized by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and amendments.

Cooperative Agreement: An agreement whereby USEPA transfers funds and other resources to a state for the accomplishment of certain remedial activities at sites on the National Priorities List (Superfund sites) as authorized by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and amendments.

Engineering Design (Remedial Design): Following a feasibility study, an engineering design is executed to translate the selected remedy in accordance with engineering criteria in a bid package, enabling implementation of the site remedy.

Focused Feasibility Study (FFS): A limited feasibility study which is performed on a certain aspect of site remediation and/or when more than one remedial measure is considered technically viable for the immediate control of a threat.

Immediate Removal Actions (IRAs): Actions taken to prevent or mitigate immediate and significant risk to human life, health or to the environment.

Initial Remedial Measures (IRMs): Actions that can be taken quickly to limit exposure or threat of exposure to a significant health or environmental hazard at sites where planning for remedial actions is underway.

Monitoring Well: A well installed under strict design specifications that, when sampled, will reveal hydrogeologic data at its point of installation. Monitoring wells are installed at predetermined locations, usually in groups, to gain knowledge of site conditions including: extent and type of ground water contamination, soil types, depth to ground water and direction of ground water flow.

National Contingency Plan (NCP): The basic policy directive for federal response actions under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and amendments. It sets forth the Hazard Ranking System and procedures and standards for responding to releases of hazardous substances, and contaminants. The NCP is a regulation subject to regular revision.

National Priorities List (NPL): A list of the highest priority releases or potential releases of hazardous substances, based upon State and U.S. Environmental Protection Agency (USEPA) Regional submissions of candidate sites and the criteria and methodology contained in the Hazard Ranking System (HRS), for the purpose of allocating funds for remedial response under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and amendments. Published by the USEPA, the NPL is updated periodically. Sites on the NPL are commonly called Superfund sites.

over...

NEWS
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
THOMAS H. KEAN, GOVERNOR
RICHARD T. DEWLING, COMMISSIONER

(STATEWIDE)
No. 88/158

PUBLIC MEETING SET FOR JUNE 7
ON BEACHWOOD-BERKELEY WATER STUDY

Immediate release:
May 24, 1988

TRENTON--The results of a Superfund remedial investigation/feasibility study (RI/FS) of lead in drinking water in Beachwood Borough and Berkeley Township, Ocean County, will be the subject of a public meeting Tuesday, June 7, at 7 p.m. in the Berkeley Township Municipal Building, Route 618, according to Commissioner Richard T. Dewling of the state Department of Environmental Protection (DEP).

The study by Roy F. Weston, Inc., of West Chester, Pa. was contracted for by DEP in 1985 at a cost of $470,000 after DEP-Ocean County Health Department research showed that some 20 percent of 700 water samples taken from domestic wells in Beachwood and four percent of 1,000 water samples from domestic wells in Berkeley Township exceeded U.S. Environmental Protection Agency (EPA) interim water standards for lead.

The study area of about 10 square miles in the two municipalities includes the Borough of Beachwood and the Pinewald section of Berkeley Township. Dewling said, "We will announce shortly when the proposed remedial action plan, currently under review by DEP and EPA, and the RI/FS will be available in local repositories for public review and comment.

All homes east of the Garden State Parkway in Beachwood have been connected to the public water system due to the excessive levels of lead found in domestic wells. This was done through a May 7, 1983 Administrative Consent Order signed by DEP and Beachwood.

(more)

NEWS
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
CN 402, TRENTON, N.J. 08625 609-292-2994 609-984-1795
THOMAS H. KEAN, GOVERNOR
RICHARD T. DEWLING, COMMISSIONER

(STATEWIDE)
No. 88/163

Immediate release:
May 27, 1988

PROPOSED REMEDIAL ACTION PLAN FOR
BEACHWOOD/BERKELEY WELLS SITE

TRENTON--Department of Environmental Protection (DEP) Commissioner Richard T. Dewling announced today that copies of the Proposed Remedial Action Plan and the Remedial Investigation Study documents for the Beachwood/Berkeley Superfund site are now available for public review at six locations.

A June 7 public meeting will be held by DEP and the U.S. Environmental Protection Agency (EPA) to discuss the results of the Remedial Investigation Study for the site. Of 100 New Jersey sites on the National Priorities List (Superfund) the Beachwood/Berkeley site ranks 55th.

The Beachwood/Berkeley Wells site encompasses Beachwood Borough and Berkeley Township, Ocean County. The study area of this site is approximately 10 square miles of Beachwood Borough and Berkeley Township.

"The Remedial Investigation concluded that there is no man-made or industrial contaminant source causing the elevated lead in drinking water," Commissioner Dewling said. Rather, the sources of the lead are comprised of a minor contribution from native ground water in the area, potential lead packers used in well construction prior to its ban, and dissolution of lead from lead-bearing components of home plumbing systems, particularly lead/tin solder.

"Unfortunately, the Superfund Amendments and Reauthorization Act (SARA) precludes the federal government from spending federal monies to remediate the lead contamination in drinking water for this site," Dewling

(more)

U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278
(Contact: Isabel Funcia at 212-264-2515)

At the June 7 public meeting, both written and oral comments may be presented. The meeting will be held in the Berkeley Township Municipal Building. Written comments on the Proposed Remedial Action Plan may also be submitted until the close of the 30-day comment period on Wednesday, June 27, 1986 and may be sent to:

Ms. Grace Singer, Chief
Bureau of Community Relations
New Jersey Department of Environmental Protection
Division of Hazardous Site Mitigation
CN 413
401 East State Street, 6th Floor
Trenton, NJ 08625

Comments and questions on how to minimize lead in drinking water will be addressed by a panel representing the N.J. Department of Environmental Protection, the N.J. Department of Health and the Ocean County Health Department. In addition, fact sheets on this subject will be available.

Further information on the plan may be obtained by writing to the DEP at the above address or by calling Charles McCarty at 609-984-3081.

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Public Meeting Notice

Results of Remedial Investigation/Feasibility Study

at

Beachwood-Berkeley Wells Site
Beachwood Borough and Berkeley Township
Ocean County

A public meeting will be held by the New Jersey Department of Environmental Protection to discuss the results of the Remedial Investigation/ Feasibility Study and the remedial alternatives for the Beachwood-Berkeley Wells site. The meeting will be held on:

Tuesday, June 7, 1988
7:00 PM
Berkeley Township Municipal Building
Pinewald-Keswick Road (Route 618)
Bayville, NJ

The draft Remedial Investigation/Feasibility Study Report and the Proposed Remedial Action Plan are available for review at the following repositories:

Berkeley Township Library
42 Station Road
Bayville, NJ 08721
(Contact: Janice Buchanan at 201-269-2144)

Berkeley Township Municipal Building
Pinewald-Keswick Road
Bayville, NJ 08721
(Contact: Carmela V. Lewis at 201-244-7400)

Beachwood Library
126 Beachwood Boulevard
Beachwood, NJ 08722
(Contact: Bette Smithbauer at 201-244-4573)

Beachwood Municipal Building
315 Atlantic City Boulevard
Beachwood, NJ 08722
(Contact: Elizabeth A. Mastropasqua at 201-286-6000)

New Jersey Department of Environmental Protection
401 East State Street, 6th floor
Trenton, NJ 08625
(Contact: Charles McCarty at 609-984-3081)

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NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
HAZARDOUS SITE MITIGATION ADMINISTRATION

Public Meeting
on
Commencement of
Remedial Investigation/Feasibility Study
at the
Beachwood/Berkeley Wells Site
Beachwood Borough and Berkeley Township
Ocean County
Thursday, April 18, 1985
7:00 p.m.
Central Regional High School
Forest Hills Parkway
Bayville, NJ

AGENDA

1.	Opening Remarks; Introduction of NJDEP personnel	Ms. Grace L. Singer, Chief Office of Community Relations NJDEP
2.	Overview of Past History and Current Situation; Introduction of Contractor: Roy F. Weston, Inc.	Mr. Joseph Maher, Site Manager Bureau of Site Management NJDEP
3.	Presentation: Remedial Investigation/Feasibility Study	Mr. Joseph Tomalavage, Project Manager Roy F. Weston, Inc.
4.	Questions and Answers	

Phase I Objectives

1. Compile and evaluate existing data concerning well records, water sample analyses, geology, land use, and waste disposal.

2. Conduct a search of the scientific literature to determine natural and man-made sources of lead, the mechanisms for movement of lead in the environment, and treatment technologies for lead control.

Potential Sources of Lead

1. Plumbing Fixtures
2. Well-Construction Materials
3. Lead in Soils and Minerals
4. Lakes and Streams
5. Automobile Emissions
6. Waste Disposal
7. Waste Water Treatment Plant Effluents
8. Industrial Activity
9. Septic Tanks Effluents

Factors Affecting Lead Movement

1. Soil and Water pH - Lead will dissolve more readily in the low pH water (4.4 to 6.7) found in Ocean County (pH is a measure of acidity and alkalinity - vinegar has a lower pH and is acidic, lime fertilizer has a high pH and is alkaline).

2. Capacity of sediments to adsorb or complex (bind) lead in solution.

3. Soil and Water Alkalinity - Moderate calcium carbonate concentration in water will inhibit the dissolution of lead.

4. CO_2 pressure, water temperature, and the presence of organic acids (such as naturally occur in the Pine Barrens) affect dissolution, movement, and precipitation of lead.

Treatment Technologies for Lead

At water treatment plants, one or more of the following techniques are used to reduce lead concentrations in water.

1. Coagulation
2. Flocculation
3. Clarification
4. Filtration
5. Adsorption
6. Reverse Osmosis
7. Electrodialysis
8. Distillation

At points of water use, i.e. homes, cost effective treatment techniques are usually limited to:

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT

HAZARDOUS SITE MITIGATION ADMINISTRATION

A Community Relations Program at Superfund Hazardous Waste Sites

As part of the federal/state program of cleanup at hazardous waste sites, a Community Relations Program is conducted to receive local input and to advise local residents and officials about the planned remedial actions at the three major stages of the cleanup: 1) remedial investigation/feasibility study 2) engineering design and 3) removal/treatment/construction. Local briefings and meetings are conducted with elected officials and residents and generally take place at:

1) The commencement of a remedial investigation/feasibility study so that local concerns can be addressed early in the process.

2) The completion of a feasibility study to discuss the alternative courses of remedial action. There is a 30-day comment period after public presentation of the alternatives during which the feasibility study is available in local repositories.

3) The engineering design stage to carry out the mandates of the selected remedial alternative.

4) The commencement of the removal/treatment/construction stage to advise of the expected physical remedial action.

5) The completion of the remedial action.

In addition to the activities outlined above, there is generally ongoing communication with local officials and residents as required. Depending upon whether the New Jersey Department of Environmental Protection (DEP) or the United States Environmental Protection Agency (EPA) has the lead in remedial action at a site, community relations activities are conducted by the relevant State or Federal agency.

In New Jersey, the DEP Community Relations Program is directed by Grace Singer, Chief, Office of Community Relations (609) 984-3081. At Region II, EPA, the contact person is Lillian Johnson, Community Relations Coordinator (212) 264-2515.

HS45:js
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NEWS

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
CN 402, TRENTON, N.J. 08625
609-292-2994

THOMAS H. KEAN, GOVERNOR
ROBERT E. HUGHEY, COMMISSIONER

(STATEWIDE)
No. 85/108

file 4

Immediate release:
April 8, 1985

Berkeley Township (Ocean County)
STUDY ON BEACHWOOD-BERKELEY
WELL CONTAMINATION TO BEGIN

TRENTON--A public meeting will be held by the state Department of Environmental Protection (DEP) on Thursday, April 18, 1985, to discuss the initiation of the Remedial Investigation/Feasibility Study (RI/FS) at the Beachwood Borough/Berkeley Township well contamination site in Ocean County.

The site is in an area between the Garden State Parkway and Route 9 in Beachwood Borough and Berkeley Township. More than 100 domestic wells drawing from the Cohansey Aquifer have been closed due to excessive levels of lead contamination.

The contract for the RI/FS has been awarded to Roy F. Weston, Inc., of West Chester, Pa. The contract amount for this Superfund investigation is $377,838. The Beachwood-Berkeley site is currently ranked 53rd among New Jersey's 95 sites listed on the National Priorities List and its update.

The meeting is scheduled for 7 p.m. in the auditorium of the Central Regional High School on Forest Hills Parkway in Bayville (Berkeley Township).

Additional information on the public meeting may be obtained by contacting Grace Singer of the DEP Hazardous Site Mitigation Administration at (609) 984-3081.

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State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
HAZARDOUS SITE MITIGATION ADMINISTRATION
CN 028, Trenton, N.J. 08625

MARWAN M. SADAT, P.E.
DIRECTOR

JORGE H. BERKOWITZ, PH.D.
ADMINISTRATOR

NOTICE

Public Meeting To Discuss
Commencement of
Remedial Investigation/Feasibility Study
at
Beachwood-Berkeley Wells
Beachwood Borough/Berkeley Township
Ocean County

A public meeting will be held by the New Jersey Department of Environmental Protection to discuss the initiation of the Remedial Investigation/Feasibility Study at the Beachwood-Berkeley Wells site.

The meeting will be held on:

Thursday, April 18, 1985
7:00 p.m.
Central Regional High School
Forest Hills Parkway
Bayville, NJ
(201) 269-1100

For further information, please contact Grace Singer at (609) 984-3081.

HS85:js

Attachment C

List of Speakers at 6/14/88 Public Meeting

1. Assemblyman Jeffrey W. Moran, 9th District

2. Michael Mozal, Berkeley Township Resident

Proposed REMEDIAL ACTION PLAN

To Recipients of the Proposed Remedial Action Plan for the Beachwood/ Berkeley Wells Superfund site (Ocean County):

Attached is the Proposed Remedial Action Plan (PRAP) for the above mentioned Superfund site. This PRAP concludes that no man-made or industrial contaminant source is the cause of the elevated lead levels found in the drinking water of Beachwood/Berkeley. Rather, the sources of the lead are from: (1) the dissolution of lead from plumbing system components, particularly lead in soldered joints, by corrosive waters; (2) the construction materials of the potable wells; and (3) a minor contribution from the area's native ground water. Because the contamination occurs as a result of building products within residences and the natural background level of lead in the aquifer, the Superfund Amendments and Reauthorization Act (SARA) precludes the use of Superfund monies to remediate this lead contamination in the drinking water.

Questions and comments about the issue of lead in drinking water will be responded to during the public meeting for this PRAP on June 7, 1988, at 7:00 PM in the Berkeley Township Municipal Building, Pinewald-Keswick Road (Route 618), Bayville, NJ.

For further information, please contact Charles McCarty at (609) 984-3081.

Proposed REMEDIAL ACTION PLAN

BEACHWOOD-BERKELEY WELLS SITE
BEACHWOOD BOROUGH AND BERKELEY TOWNSHIP
OCEAN COUNTY
JUNE, 1988

Site Background

The Beachwood/Berkeley Wells Superfund site encompasses the entire Borough of Beachwood and the Township of Berkeley in Ocean County, New Jersey. In 1982 the New Jersey Department of Environmental Protection (NJDEP) and the Ocean County Health Department (OCHD) collected approximately 700 water samples from domestic wells in Beachwood Borough and approximately 1000 water samples from domestic wells in Berkeley Township. The results of the analyses indicated that about 20 percent of the wells sampled in Beachwood and 4 percent of the wells in Berkeley Township exceeded the United States Environmental Protection Agency (USEPA) Interim Primary Drinking Water Standard for lead of 50 parts per billion (ppb). There was no obvious geographical pattern to the occurrence of the lead in well water within these communities that could point to an obvious source of the contamination, such as a hazardous waste site.

This occurrence of lead in drinking water resulted in the NJDEP signing a Cooperative Agreement with USEPA to conduct a Remedial Investigation Study (RI). A contract to conduct the study was awarded to Roy F. Weston, Inc. of West Chester, Pennsylvania. The study concentrated on an approximate 10-square mile area including all of Beachwood Borough and the Pinewald section of Berkeley Township.

Prior to initiating the Superfund investigation, an Administrative Consent Order (ACO) was signed between NJDEP and Beachwood Borough in May 1983 which resulted in the extension of the Borough's public water system to all homes in the Borough east of the Garden State Parkway. The ACO also required quarterly sampling and analysis of all public water supply wells within Beachwood for lead.

Of the 100 New Jersey sites on the National Priorities List (Superfund) Beachwood/Berkeley is ranked 55th.

Purpose of The Proposed Plan

This document provides: a summary of the results of the Remedial Investigation documenting the nonexistence of a "hazardous waste site" as defined under Superfund in accordance with the Superfund Amendments and Reauthorization Act (SARA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund); a summary of options available to individual residences to personally remediate elevated lead levels in drinking water; and documentation for the proposed decision to take no further action under the auspices of SARA.

The decision is based on the documents contained and referenced in the administrative record, most importantly the Remedial Investigation.

Community Role

USEPA and NJDEP solicit and incorporate public input in reaching decisions on Superfund hazardous waste sites. This Proposed Remedial Action Plan and the administrative record including the RI are available for review and comment at the following repositories:

Berkeley Township Library
42 Station Road
Bayville, NJ 08721
(Contact: Janice Buchanan at 201-269-2144)

Berkeley Township Municipal Building
Pinewald-Keswick Road
Bayville, NJ 08721
(Contact: Carmela V. Lewis at 201-244-7400)

Beachwood Library
126 Beachwood Boulevard
Beachwood, NJ 08722
(Contact: Bette Smithbauer at 201-244-4573)

Beachwood Municipal Building
315 Atlantic City Boulevard
Beachwood, NJ 08722
(Contact: Elizabeth A. Mastropasqua at 201-286-6000)

New Jersey Department of Environmental Protection
401 East State Street, 6th Floor
Trenton, NJ 08625
(Contact: Charles McCarty at 609-984-3081)

United States Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278
(Contact: Isabel Funcia at 212-264-2515)

Although the proposed decision is the one presented by USEPA and NJDEP, a decision will be made only after consideration of all comments received during the 30-day public comment period. Written and verbal comments on the proposed plan will be welcome through June 27, 1988 and will be documented in the Responsiveness Summary section of the final Record of Decision (ROD). All written comments should be addressed to:

Grace Singer, Chief
Bureau of Community Relations
Division of Hazardous Site Mitigation
NJ Department of Environmental Protection
401 East State Street, 6th Floor
CN 413
Trenton, NJ 08625

Notice of the final decision will be published and made available to the public at the repositories listed previously. The final decision will be accompanied by an explanation of any significant changes from the proposed plan. Questions concerning the proposed plan may be directed to Charles McCarty of NJDEP at (609)984-3081.

Scope of Activities

The Remedial Investigation consisted of four tasks including: Task 1 - Background Investigation/Literature Search Report which present the compiled and evaluated existing data and an extensive literature search of lead and its effects on potable water; Task 2 - Quality Assurance Plan, Health and Safety Plan, Field Sampling Plan and Project Schedule; Task 3 - Site Investigation Report (RI) which presents the operations, findings, conclusions and recommendations of the field investigations; and Task 4 - Selection of Remedial Response Objectives and Identification of Alternatives which describes the assessment of the alternatives available for the treatment of lead in potable water.

Task 1 provided an assessment of all previous data collected and a review of existing literature to help identify the source or cause of the lead contamination and formulate the field investigations. The results of Task 1 provided the foundation for the hypothesis that the primary source of the lead was likely the interaction of corrosive ground water with lead bearing components of the plumbing system, particularly the lead/tin solder used in copper plumbing. In addition to the primary source, other potential sources included lead leaching from native soils to ground water and lead component materials in well construction.

Total and soluble lead concentrations in all of the ground water monitoring well samples were below the lead drinking water standard indicating that the native ground water is acceptable as a potable supply. (After well development, 6 of the 10 wells showed non-detectable levels of lead while the other 4 wells had lead levels up to .25 ppb.)

Data for wells constructed of PVC did not differ significantly from the data for wells constructed of stainless steel.

In conclusion, the Remedial Investigation documents the fact that there is no man-made or industrial contaminant source causing the elevated lead in drinking water. Rather, the sources of the lead are comprised of a minor contribution from native ground water in the area, potential lead packers used in well construction prior to its ban, and dissolution of lead from lead bearing components of home plumbing systems, particularly lead/tin solder.

Summaries of Options Available to Individual Homeowners

The study identifies five options potentially applicable for individual homeowners to remediate the elevated lead levels in drinking water and available to the general public. These are:

Option 1 - Calcite Treatment

In this option, the corrosivity of the water supply is changed by passing water through a fixed bed of calcite (calcium carbonate) via a point-of-use treatment unit commercially available to the public. The treatment units are usually upright cylinders installed at locations remote from the tap (basements, garages, crawl spaces) and connected to the incoming water supply.

This option addresses the problem of lead leaching from plumbing components by corrosive water.

Option 2 - Zeolite Softening and Calcite Treatment

This option is an extension of Alternative 1 that addresses not only lead leaching from plumbing components by corrosive water, but lead entering the home water supply from such sources as native ground water and lead leached from lead packing in the supply well.

The zeolite softening is an ion-exchange process employing an exchange resin whereby sodium is exchanged for calcium, magnesium and other divalent cations such as lead. These removed compounds become absorbed on the zeolite bed, but the capacity for removal gradually decreases as sodium is depleted. Therefore, the sodium zeolite must be regenerated periodically by flushing salt brine through the bed.

In this option, zeolite softening is followed by calcite treatment to reduce the corrosivity (raise the hardness through dissolution of divalent calcium cations). The sodium zeolite treatment units are normally upright cylinders similar to the calcite units. Both units would be connected prior to existing holding tanks to treat the water supply entering the home.

Option 3 - Reverse Osmosis with Carbon Polishing

Reverse osmosis (RO) is a membrane process employing a semi-permeable barrier to preferentially remove specific components of a solution. Carbon adsorption as a polishing step serves a dual purpose in both removing trace amounts of lead and improving the flat taste of the water from the RO unit. Filtering of the water prior to introduction into the RO module is also included.

In this option, the prefiltering RO and carbon modules would be connected into the residential water supply as a rear-tap installation, preferably under the sink. Under this configuration, only the water supplied through the taps used for potable purposes would be treated. A small holding tank for the treated water and a separate tap would be required.

Option 4 - Distillation

Distillation is a separation process based upon the difference in volatility of the components of a solution when heat is applied. The significant difference in volatility between water and metal ions and salts renders distillation a viable alternative. Small units producing about 1.5 liters per hour are commercially available.

In this option, the distillation still would be connected near the tap to treat only the water for potable purposes but not in a confined space such as under the sink due to the substantial heat generated by the unit. Separate taps for potable water would be required.

Option 5 - Partial Replumbing

In this option, a partial plumbing retrofit of new copper piping joined with nonlead-bearing solder for the water taps used for drinking, cooking, and oral hygiene would be instituted.

Discussion of No Further Action

Section 104(a)(3), Limitations on Response, under the Superfund Amendments and Reauthorization Act states, "The President shall not provide for a removal or remedial action under this section in response to a release or threat of release -

(A) of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found;

(B) from products which are part of the structure of, and result in exposure within residential buildings or business or community structures; or

(C) into public or private drinking water supplies due to deterioration of the system through ordinary use."

Item A is applicable to this Superfund site from the standpoint that a natural background level of lead contributes to the lead concentration in tap water for Berkeley Township residences on wells. Item B is applicable because the lead solders used in copper plumbing systems are the major source of lead in tap water for both communities, particularly, the Berkeley Township residences with wells tapping into the corrosive ground water of the Cohansey Aquifer.

The applicability of Items A and B precludes the federal government from spending Superfund monies to remediate the lead contamination in drinking water for the area. Accordingly, no further action can be taken under the Superfund program to implement any remedial action.

At the public meeting on June 7, 1988 at the Berkeley Township Municipal Building, representatives of the New Jersey Department of Environmental Protection, the New Jersey Department of Health, and Ocean County Department of Health will be present to answer questions on the issue of lead in drinking water.

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Community Relations Program

at Superfund Hazardous Waste Sites

As part of the federal/state program of cleanup at hazardous waste sites, a Community Relations Program is conducted to receive local input and to advise local residents and officials about the planned remedial actions at major stages of the cleanup. Local briefings and meetings are conducted with elected officials and residents and generally take place at:

1) The commencement of a remedial investigation/feasibility study so that local concerns can be addressed early in the process.

2) The completion of a feasibility study to discuss the alternative courses of remedial action. There is a 21-day comment period on the alternatives during which the feasibility study is available in local repositories.

3) The commencement of the treatment/construction/removal stage to advise of the expected physical remedial action.

4) The completion of the remedial action.

In addition to the activities outlined above, there is generally ongoing communication with local officials and residents as required. Depending upon whether the New Jersey Department of Environmental Protection (DEP) or the United States Environmental Protection Agency (EPA) is the lead agency in remedial action at a site, community relations activities are conducted by the relevant State or Federal agency.

In New Jersey, the DEP Community Relations Program is directed by Grace Singer, Chief, Bureau of Community Relations (609) 984-3081. At Region II, EPA, the Community Relations Coordinator is Lillian Johnson, (212) 264-2515.

Division of Hazardous Site Mitigation

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New Jersey Department of Environmental Protection